

Louisiana Department of Health: Tuberculosis Control Program

# Demographic Trends of Tuberculosis in Louisiana, 2010-2016

8-17-2017

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## Summary

This report breaks down demographic trends for Tuberculosis (TB) in Louisiana from 2010 to 2016. The report looks at the number of TB cases, TB case rates and relative risk by sex, race, ethnicity, and age, and the percent of cases by country of origin, risk factors, and site of disease. Case rates were calculated using mid-year population estimates<sup>1</sup>.

Louisiana has consistently ranked in the top 20 in the nation for TB case rates.<sup>2,3</sup> The number of cases in Louisiana dropped from 331 in 2000 to 200 in 2010 and to 128 in 2016. This represents a 36.0% decrease in the number of cases from 2010 to 2016, and an average decrease of 6.8% per year. However there was a 7.0% increase in the number of cases from 2015 to 2016. The case rate dropped 35.9% from 4.27 cases per 100,000 population in 2010 to 2.37 cases per 100,000 population in 2016. The case rate decreased an average of 6.6% per year. Louisiana's case rate dropped below the national average for the first time in 2014 and remained lower in 2015 and 2016.

During the 2010-2016 period the male case rates were higher than female case rates each year. Asian case rates were higher than Black/African-American and White case rates, and Black/African-American cases rate were higher than White case rates each year. This pattern held when race was subdivided by sex. The case rates for Hispanic/Latinos were higher than those for Non-Hispanics. This trend held when ethnicity was subdivided by sex with the exception of female Non-Hispanics having a higher case rate than female Hispanic/Latinos in 2012. The case rates for White, Asian, and Hispanic/Latino were higher in Louisiana than for the US. The case rates for Black/African-American were lower in Louisiana than for the US, with the exception of 2010.<sup>4</sup>

The case rates for ages 0-4, 10-19, and 20-29 increased during the 2010-2016 period, while the case rates for ages 5-9, 60-69, 70-79, 80-84, and 85+ decreased. There were less consistent changes in the case rates for age groups 30-39, 40-49, and 50-59.

The majority of cases in Louisiana from 2010-2016 were US-born. However the percentage of foreign-born cases increased from 23.0% in 2010 to 33.6% in 2016. The most common countries of origin for foreign-born cases in Louisiana were Vietnam, Honduras, Mexico, and the Philippines.

The most prevalent risk factors during this period were excessive alcohol consumption, non-injection drug use, and diabetes co-infection. Excessive alcohol consumption is defined as three or more drinks per day. Excessive alcohol consumption and non-injection drug use occurred within one year prior to diagnosis.

The lowest percentage of extrapulmonary cases occurred in 2013 (14.3%) and the highest in 2012 (25.7%). The most common extrapulmonary sites of disease were pleural, lymphatic cervical, and multiple sites.

<sup>1</sup> [http://louisiana.gov/Explore/Demographics\\_and\\_Geography/](http://louisiana.gov/Explore/Demographics_and_Geography/)

<sup>2</sup> <https://www.cdc.gov/tb/statistics/reports/2013/table30.htm>

<sup>3</sup> <https://www.cdc.gov/tb/statistics/reports/2015/table30.htm>

<sup>4</sup> <https://www.cdc.gov/tb/statistics/reports/2015/table2.htm>

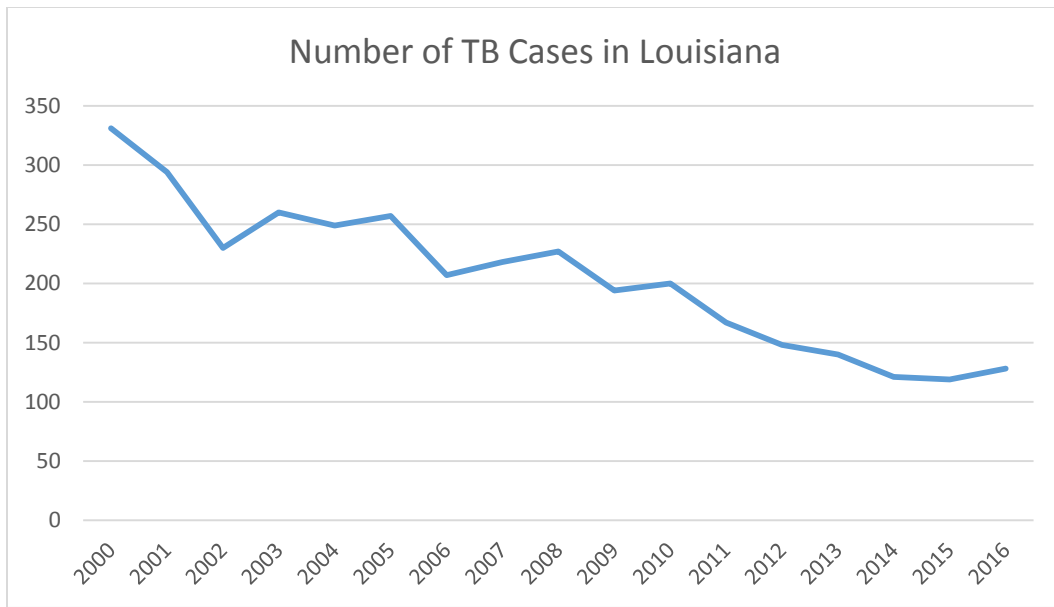


Figure 1. Number of TB cases per year in Louisiana from 2000-2016.

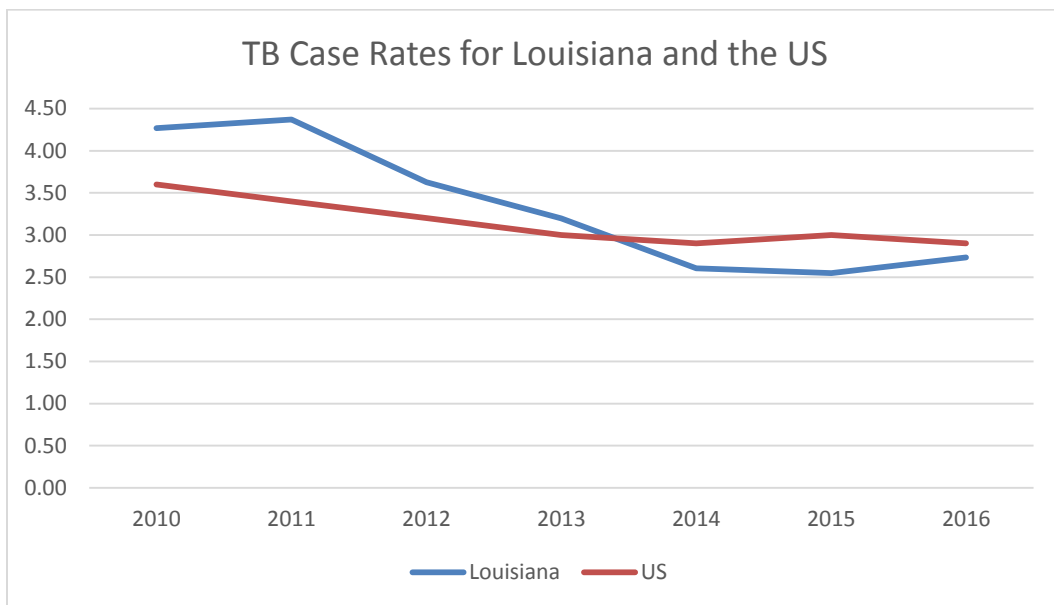


Figure 2. TB case rates for Louisiana and the US from 2010-2016.

## Figures and Tables

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## TB by Sex

While male case rates were higher than female case rates each year, the net and average per year percent change from 2010-2016 were greater for males. The male case rate had a net decrease of 45.2%, with an average decrease of 8.7% per year. The female case rate had a net decrease of 18.7%, but there was no consistent pattern of increase or decrease for female case rates.

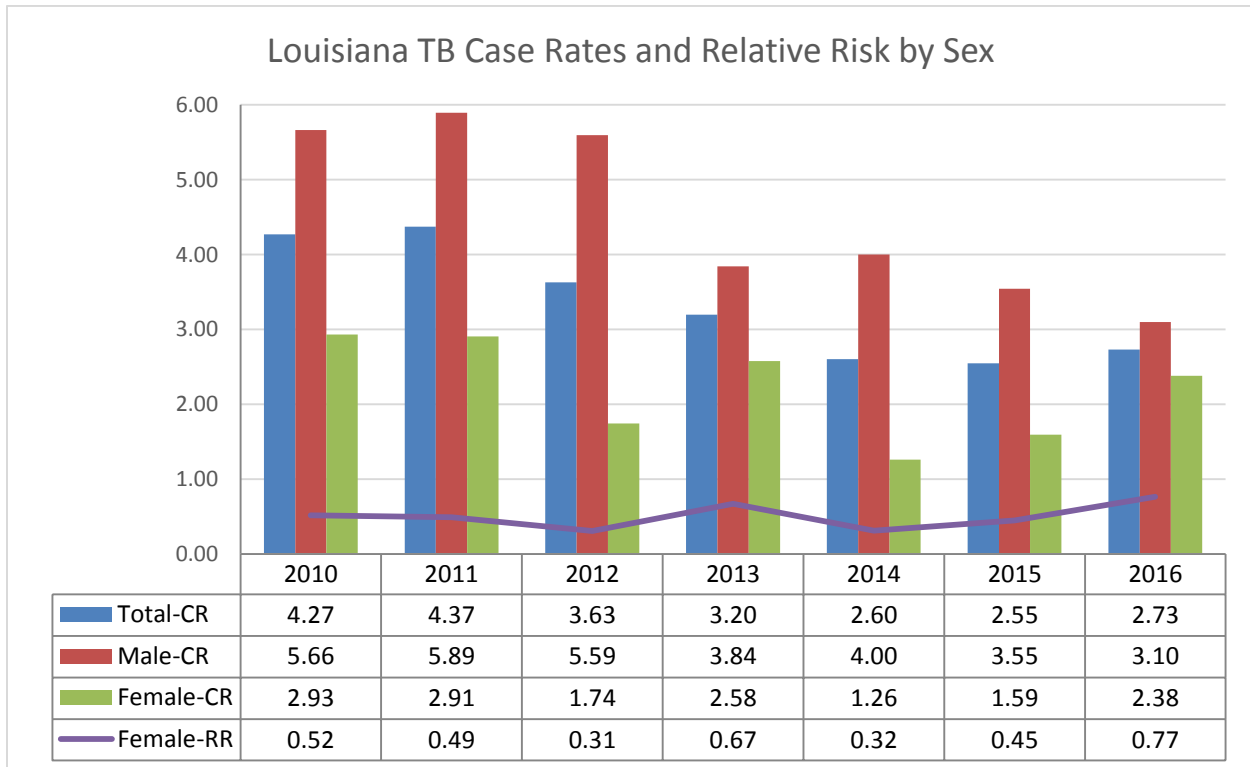


Figure 3. Total, male, and female TB case rates (CR) and relative risk (RR) for Louisiana from 2010-2016.

## TB by Race and Ethnicity

The Asian and Black/African-American case rates were higher than the White case rates each year, but had greater net and yearly average decreases from 2010-2016. The Asian case rate had a net decrease of 40.6%. The Asian case rate decreased by an average of 15.8% per year from 2010 to 2013, before increasing in 2014 and 2015. The Black/African-American case rate had a net decrease of 57.0%. The Black/African-American case rate decreased by an average of 16.8% per year from 2010 to 2015, before a slight increase in 2016. The net decrease for the White case rate was 9.3% and there was no consistent pattern of increase or decrease.

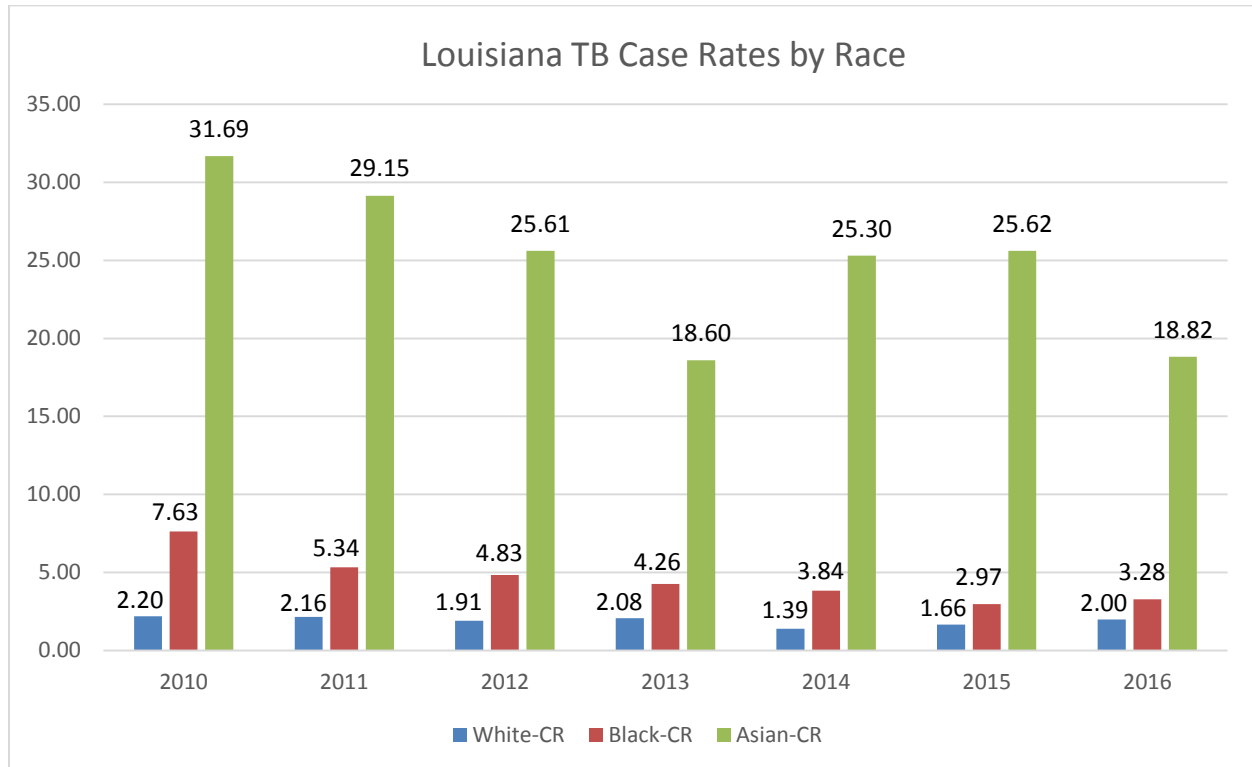


Figure 4. White, Black (Black-African/American), and Asian case rates (CR) for Louisiana from 2010-2016.

Native Hawaiian or Other Pacific Islander and American Indian or Alaska Native were not included because there were only one and three cases for each group respectively over the 2010-2016 period.

The greatest net decrease when race was subdivided by sex was among male-Asian (82.7%). However, male-Black/African-American had a more consistent pattern of decrease than male-White and male-Asian, decreasing each year except 2014. Female-White and female-Asian were the only groups that had net and yearly average increases.

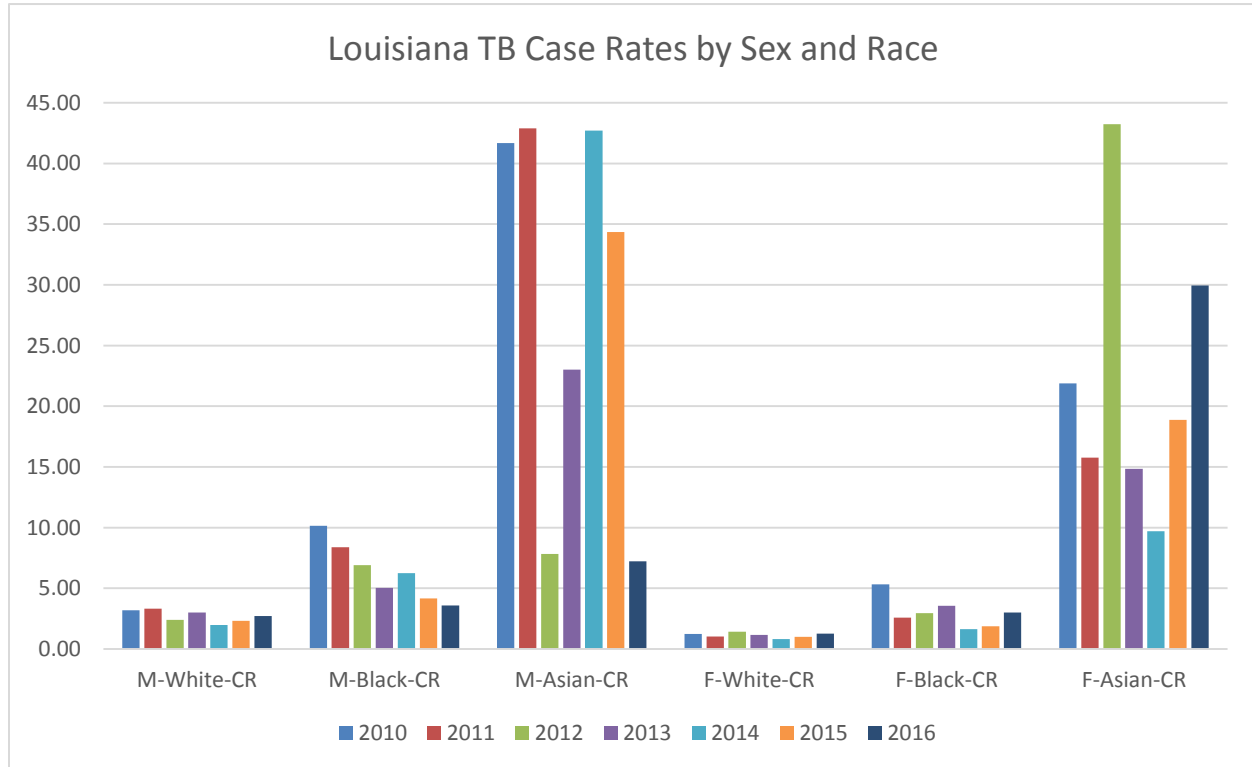


Figure 5. TB case rates (CR) by sex (M-male, F-female) and race (Black-Black/African American), for Louisiana from 2010-2016.

Table 1. TB case rates (CR) by sex (M-male, F-female) and race (Black-Black/African American), for Louisiana from 2010-2016.

Year	M-White-CR	M-Black-CR	M-Asian-CR	F-White-CR	F-Black-CR	F-Asian-CR
2010	3.19	10.16	41.68	1.23	5.33	21.88
2011	3.32	8.37	42.90	1.02	2.58	15.78
2012	2.41	6.90	7.83	1.42	2.94	43.25
2013	3.02	5.04	23.02	1.15	3.55	14.85
2014	1.98	6.26	42.70	0.81	1.64	9.70
2015	2.32	4.15	34.34	1.01	1.88	18.87
2016	2.73	3.59	7.21	1.27	3.00	29.95



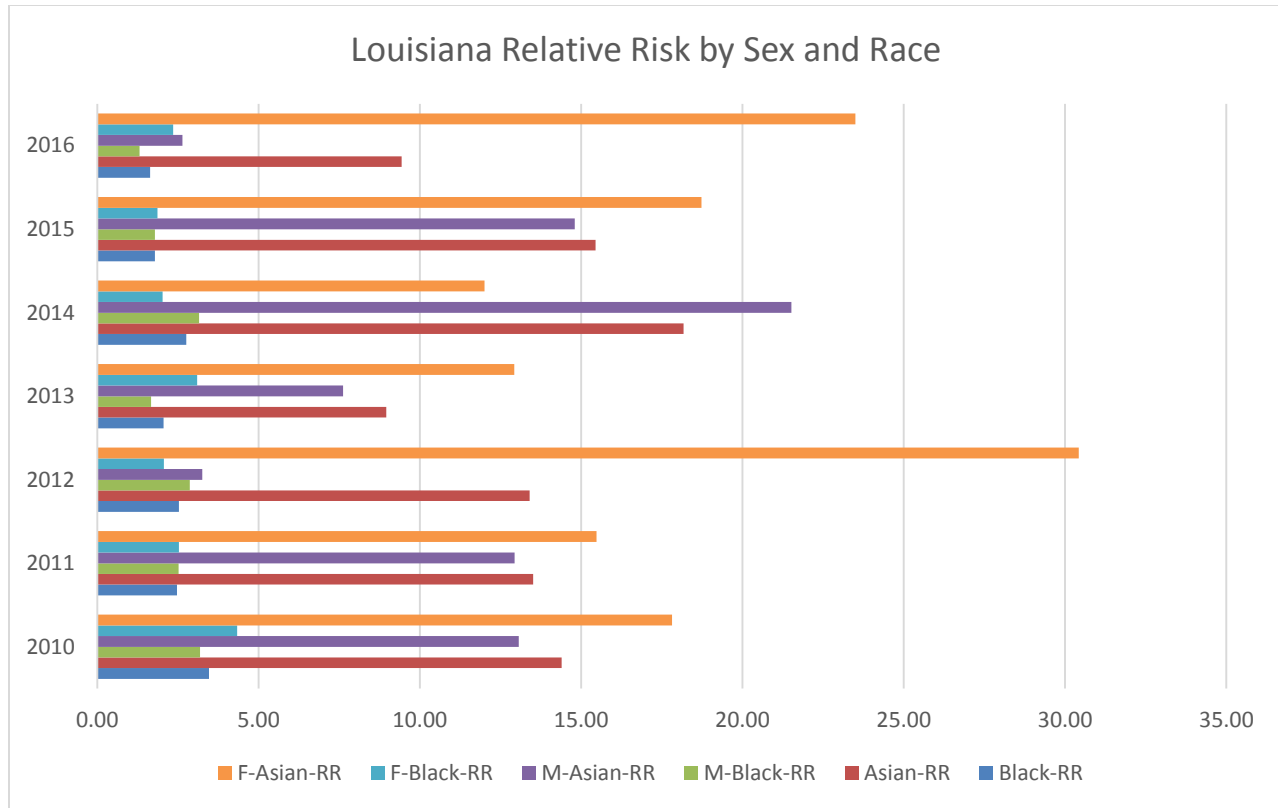


Figure 6. Relative risk for TB by sex (M-male, F-female) and race (Black-Black/African-American), for Louisiana from 2010-2016. Relative risk by race is relative to White. Relative risk by sex and race is relative to Male-White and Female-White respectively.

Table 2. Relative risk by sex (M-male, F-female) and race (Black-Black/African-American), for Louisiana from 2010-2016.

Year	Black-RR	Asian-RR	M-Black-RR	M-Asian-RR	F-Black-RR	F-Asian-RR
2010	3.47	14.40	3.19	13.07	4.34	17.82
2011	2.47	13.51	2.53	12.94	2.53	15.48
2012	2.53	13.41	2.87	3.25	2.07	30.42
2013	2.05	8.96	1.67	7.62	3.09	12.93
2014	2.76	18.17	3.15	21.51	2.03	12.01
2015	1.79	15.45	1.79	14.80	1.87	18.73
2016	1.64	9.43	1.31	2.64	2.35	23.50

The Non-Hispanic case rate had a net decrease of 41.8% from 2010-2016. The Non-Hispanic case rate decreased by an average of 11.0% per year from 2010-2015 before a slight increase in 2016. The Hispanic/Latino case rate decreased by an average of 31.9% from 2010 to 2012 before increasing again by an average of 15.4% from 2013 to 2016. The Hispanic/Latino case rate had a net decrease of 21.0% over the 2010-2016 period.

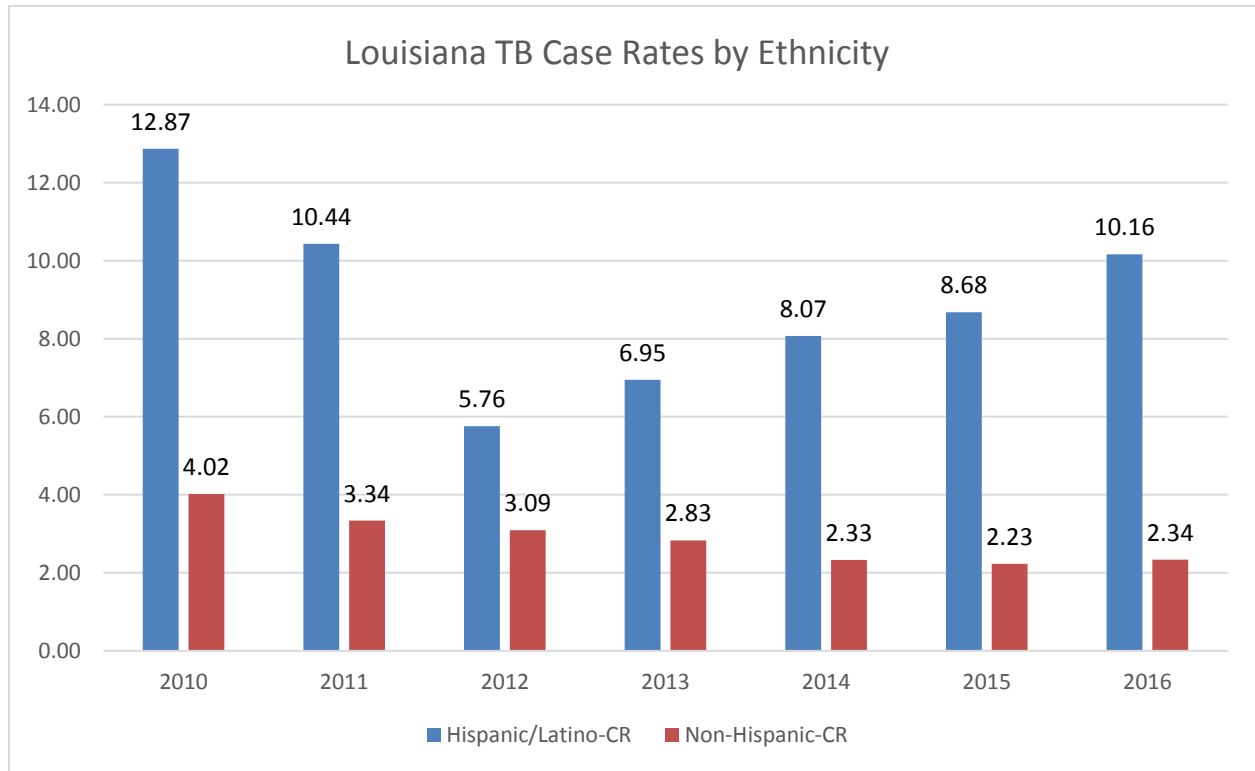


Figure 7. Hispanic/Latino and Non-Hispanic case rates (CR) for Louisiana from 2010-2016.

When ethnicity was subdivided by sex, the greatest net decrease (50.6%) and most consistent decrease were among male-Non-Hispanics. Female-Hispanic/Latino were the only group that had net and yearly average increases.

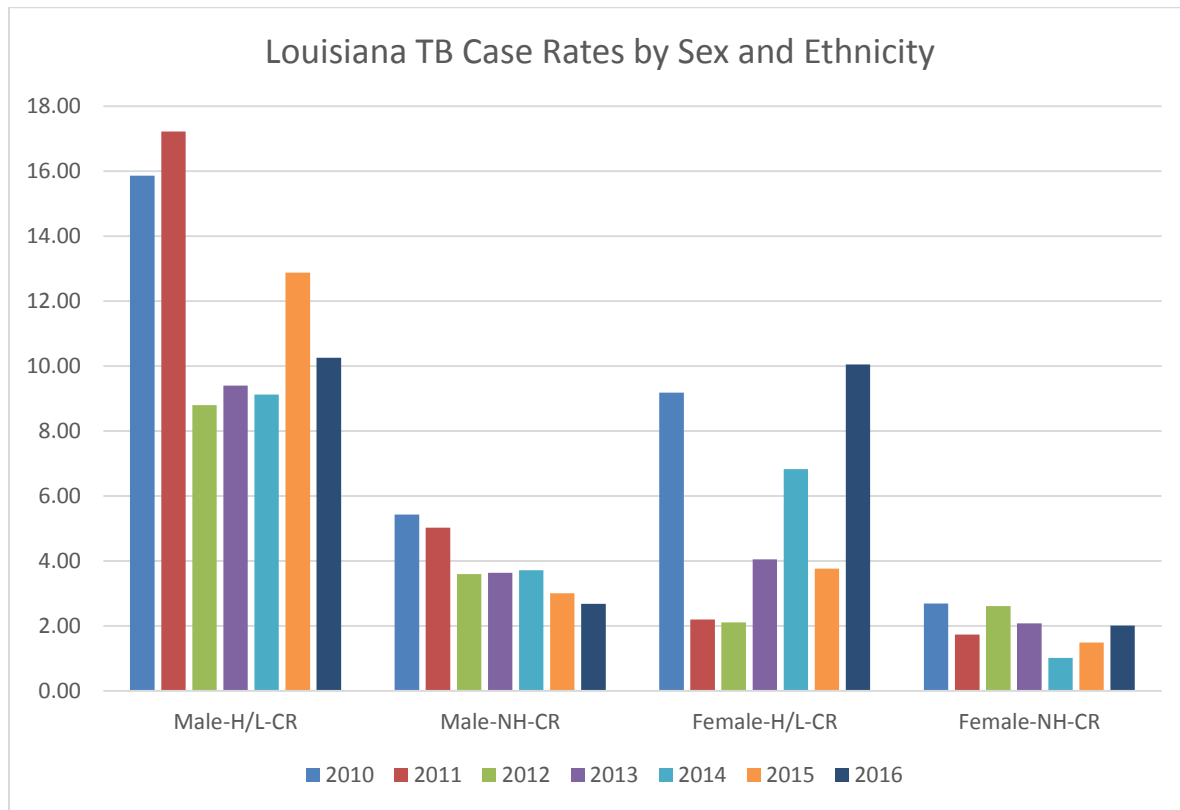


Figure 8. Case rates (CR) by sex and ethnicity (H/L-Hispanic/Latino, NH-Non-Hispanic) for Louisiana from 2010-2016.

Table 3. Case rates (CR) by sex and ethnicity (H/L-Hispanic/Latino, NH-Non-Hispanic) for Louisiana from 2010-2016.

Year	Male-H/L-CR	Male-NH-CR	Female-H/L-CR	Female-NH-CR
2010	15.86	5.43	9.19	2.69
2011	17.22	5.03	2.20	1.74
2012	8.80	3.60	2.11	2.62
2013	9.40	3.63	4.05	2.08
2014	9.12	3.71	6.83	1.01
2015	12.88	3.01	3.76	1.49
2016	10.26	2.68	10.05	2.02

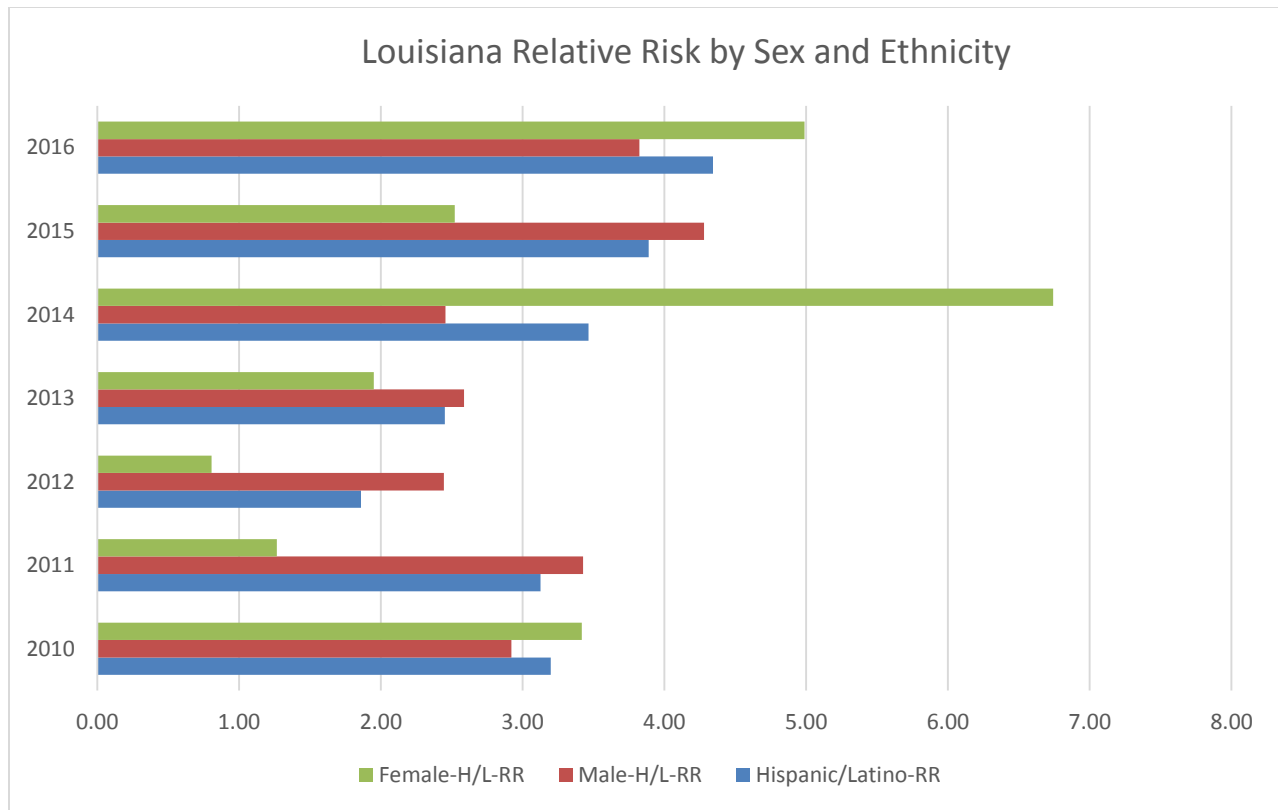


Figure 9. Relative risk for TB by sex and ethnicity (H/L-Hispanic/Latino). Hispanic/Latino relative risk is relative to Non-Hispanic (NH). Male-H/L and female-H/L risk are relative to male-NH and female-NH respectively.

Table 4. Relative risk by sex and ethnicity (H/L-Hispanic/Latino).

Year	Hispanic/Latino-RR	Male-H/L-RR	Female-H/L-RR
2010	3.20	2.92	3.42
2011	3.13	3.43	1.27
2012	1.86	2.44	0.81
2013	2.45	2.59	1.95
2014	3.47	2.46	6.74
2015	3.89	4.28	2.52
2016	4.34	3.82	4.99

Louisiana had a higher overall case rate than the US from 2010-2013 and then dropped below the national case rate from 2014-2016. The case rates for White and Asian in Louisiana were higher than the national case rates each year from 2010-2016. The case rates for Black/African-American in Louisiana were lower than the national rates each year, with the exception of 2010. The Hispanic/Latino case rates in Louisiana were higher than US case rates each year. The case rates for Non-Hispanics in Louisiana were not compared to the US because the national report subdivided Non-Hispanic ethnicity by race and did not include total Non-Hispanic case rate.

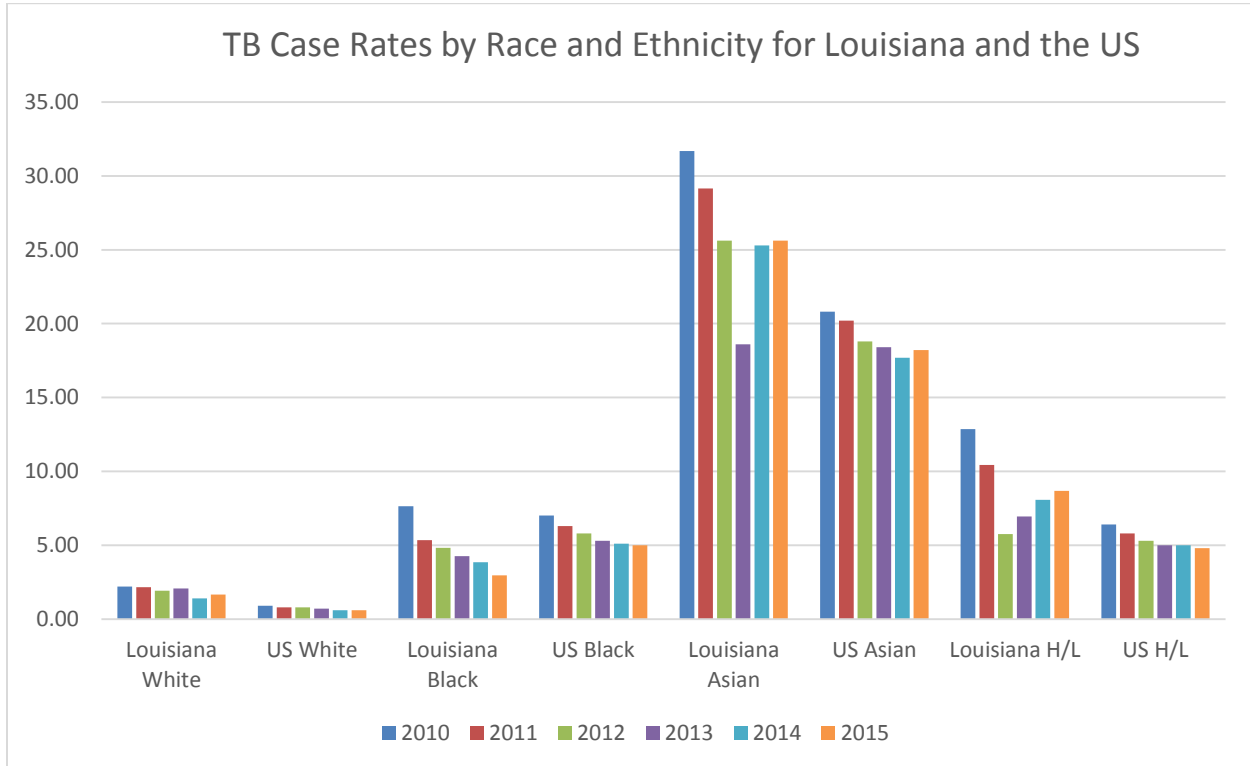


Figure 10. TB case rates by race (Black-Black/African-American) and ethnicity (H/L-Hispanic/Latino) for Louisiana and the US from 2010-2015.<sup>5</sup>

<sup>5</sup> <https://www.cdc.gov/tb/statistics/reports/2015/table2.htm>

## TB by Age

From 2010-2012 there were no cases among 0-4 year olds. By 2016 the case rate for the 0-4 age group was 0.97 cases per 100,000. From 2010 to 2016 the case rates for ages 10-19 and 20-29 had a net increase of 73.3% and 54.4% respectively. The case rates for ages 5-9 and 60-85+ decreased during the 2010-2016 period. The case rates for each age group had a net decrease of 75.4% (5-9), 71.0% (60-69), 57.4% (70-79), 89.1% (80-84), and 84.4% (85+) from 2010 to 2016. There were less consistent changes among the 30-39, 40-49, and 50-59 age groups.

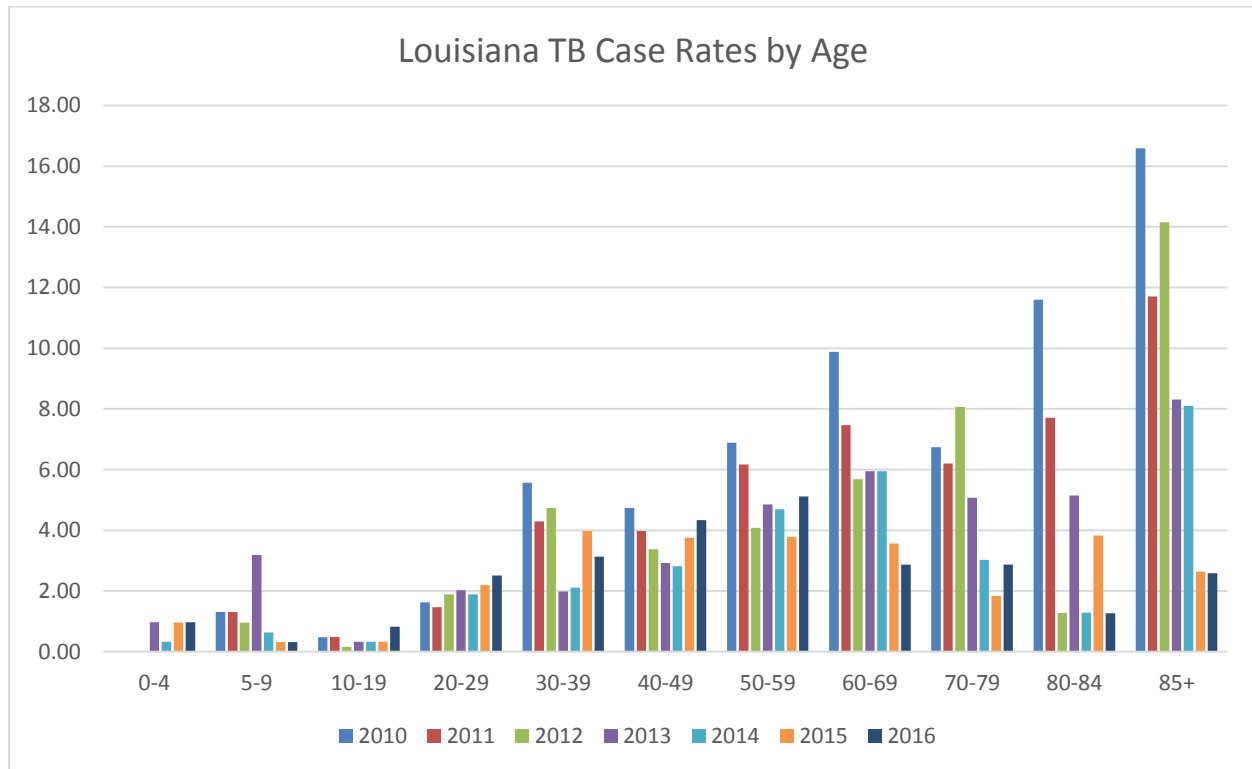


Figure 11. TB case rates by age for Louisiana from 2010-2016.

Table 5. TB case rates by age for Louisiana from 2010-2016.

Age	2010	2011	2012	2013	2014	2015	2016
0-4	0.00	0.00	0.00	0.97	0.32	0.96	0.97
5-9	1.31	1.30	0.97	3.19	0.64	0.32	0.32
10-19	0.47	0.48	0.16	0.33	0.33	0.33	0.82
20-29	1.63	1.46	1.89	2.03	1.89	2.19	2.52
30-39	5.57	4.30	4.73	1.99	2.11	3.98	3.14
40-49	4.74	3.98	3.37	2.92	2.81	3.75	4.33
50-59	6.89	6.17	4.08	4.85	4.70	3.78	5.11
60-69	9.88	7.46	5.68	5.95	5.95	3.56	2.86
70-79	6.74	6.20	8.07	5.07	3.02	1.84	2.87
80-84	11.60	7.71	1.28	5.14	1.29	3.83	1.26
85+	16.58	11.71	14.15	8.31	8.10	2.64	2.58

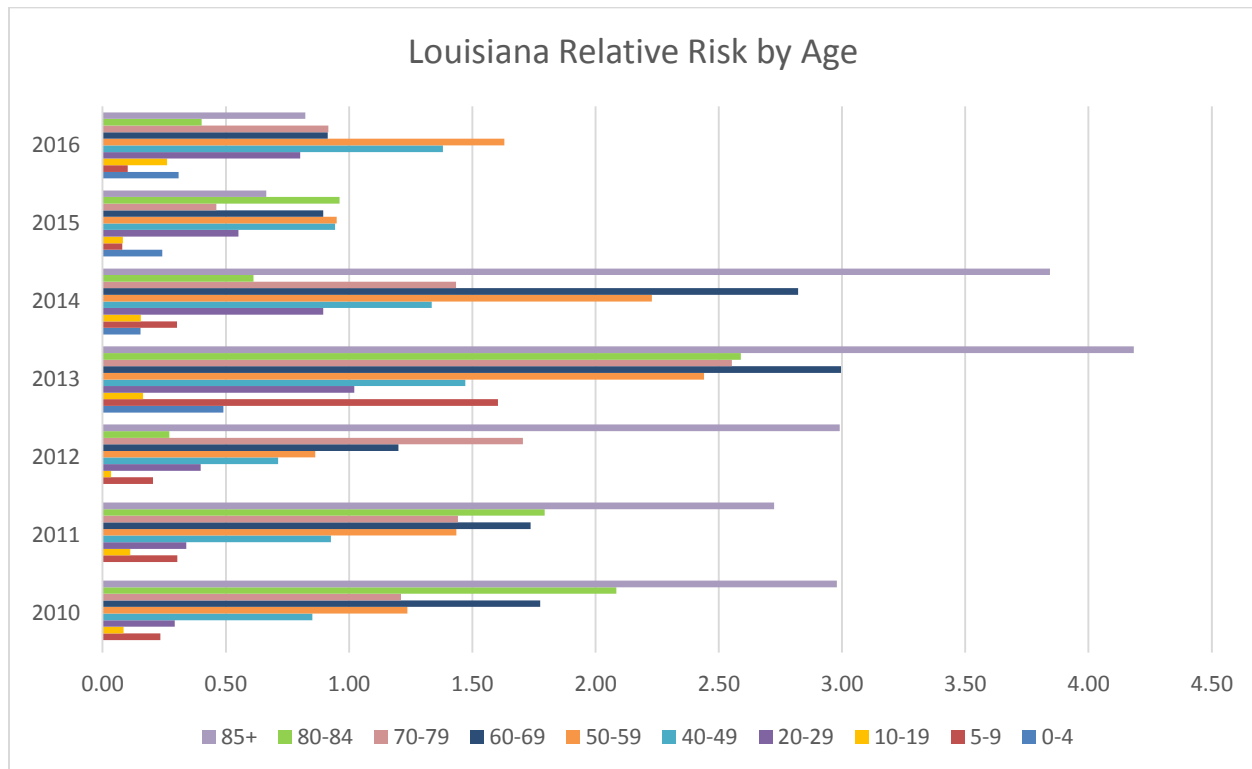


Figure 12. Relative risk by age for Louisiana from 2010-2016. Relative risk by age is relative to age group 30-39, because each year the median age for Louisiana fell into that age group.

Table 6. Relative Risk by age for Louisiana from 2010-2016.

Age	2010	2011	2012	2013	2014	2015	2016
0-4	0.00	0.00	0.00	0.49	0.15	0.24	0.31
5-9	0.23	0.30	0.20	1.60	0.30	0.08	0.10
10-19	0.09	0.11	0.03	0.16	0.16	0.08	0.26
20-29	0.29	0.34	0.40	1.02	0.89	0.55	0.80
40-49	0.85	0.93	0.71	1.47	1.33	0.94	1.38
50-59	1.24	1.44	0.86	2.44	2.23	0.95	1.63
60-69	1.78	1.74	1.20	3.00	2.82	0.89	0.91
70-79	1.21	1.44	1.71	2.55	1.43	0.46	0.92
80-84	2.08	1.79	0.27	2.59	0.61	0.96	0.40
85+	2.98	2.72	2.99	4.18	3.84	0.66	0.82

## TB by Country of Origin

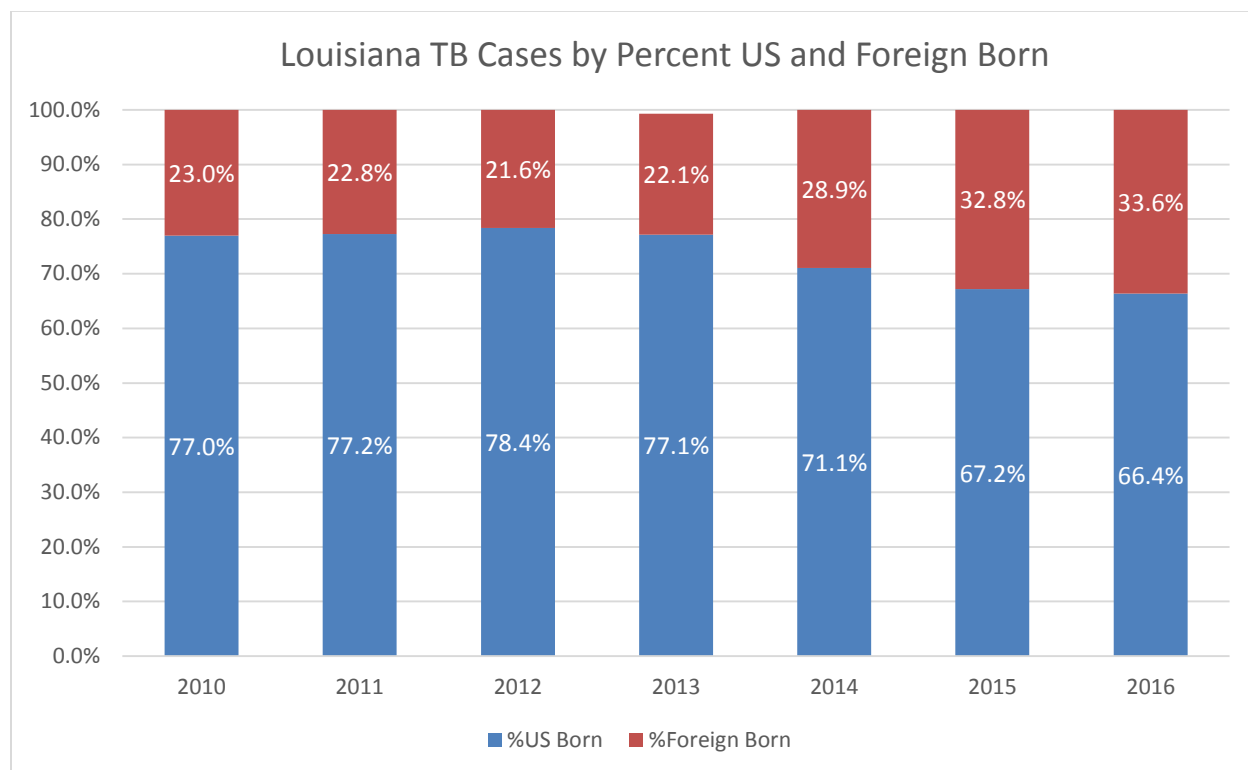


Figure 13. Percent of US and Foreign Born TB cases in Louisiana from 2010-2016.



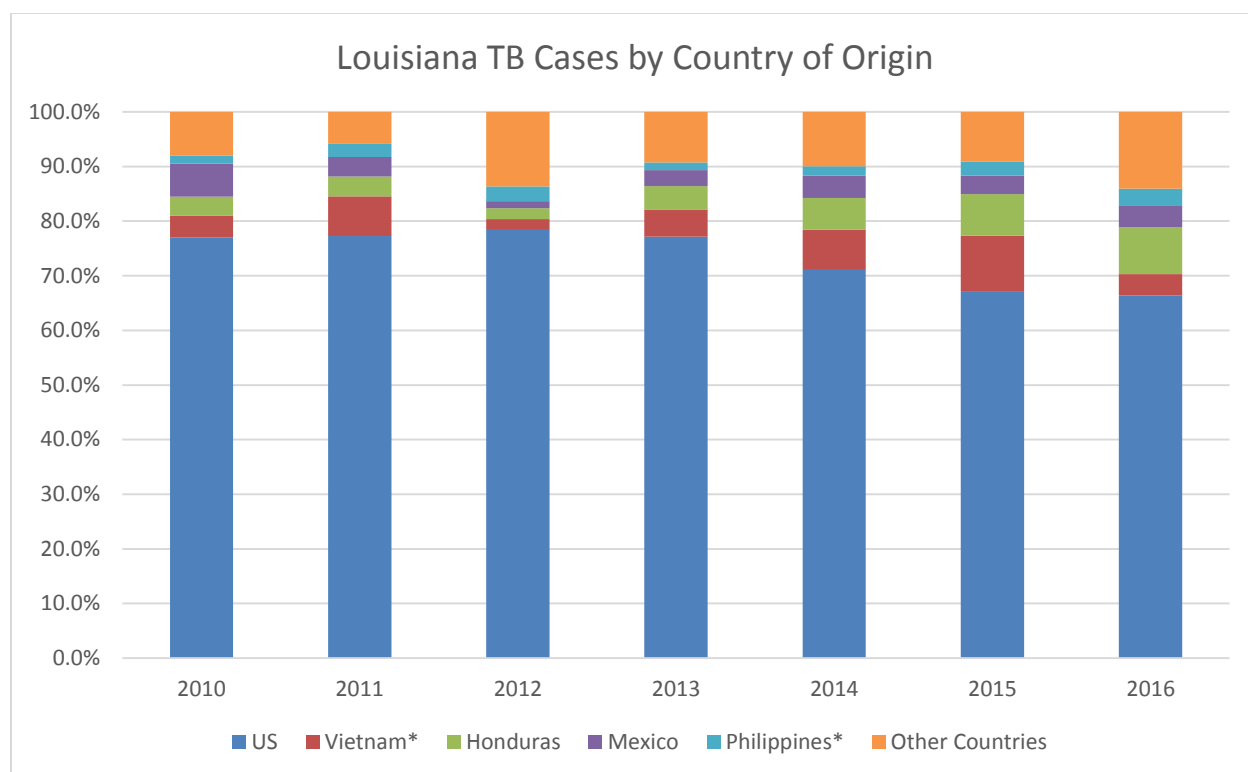


Figure 14. Percent of TB cases by country of origin (birth) for Louisiana from 2010-2016. \*Denotes one of the 30 highest TB burden countries according to the STOP TB Partnership and World Health Organization<sup>6</sup>.

<sup>6</sup> <http://www.stoptb.org/countries/tbdata.asp>

The percentage of foreign-born cases in Louisiana was lower than the national percentage of foreign-born cases each year from 2010-2015. National data for 2016 was not available.

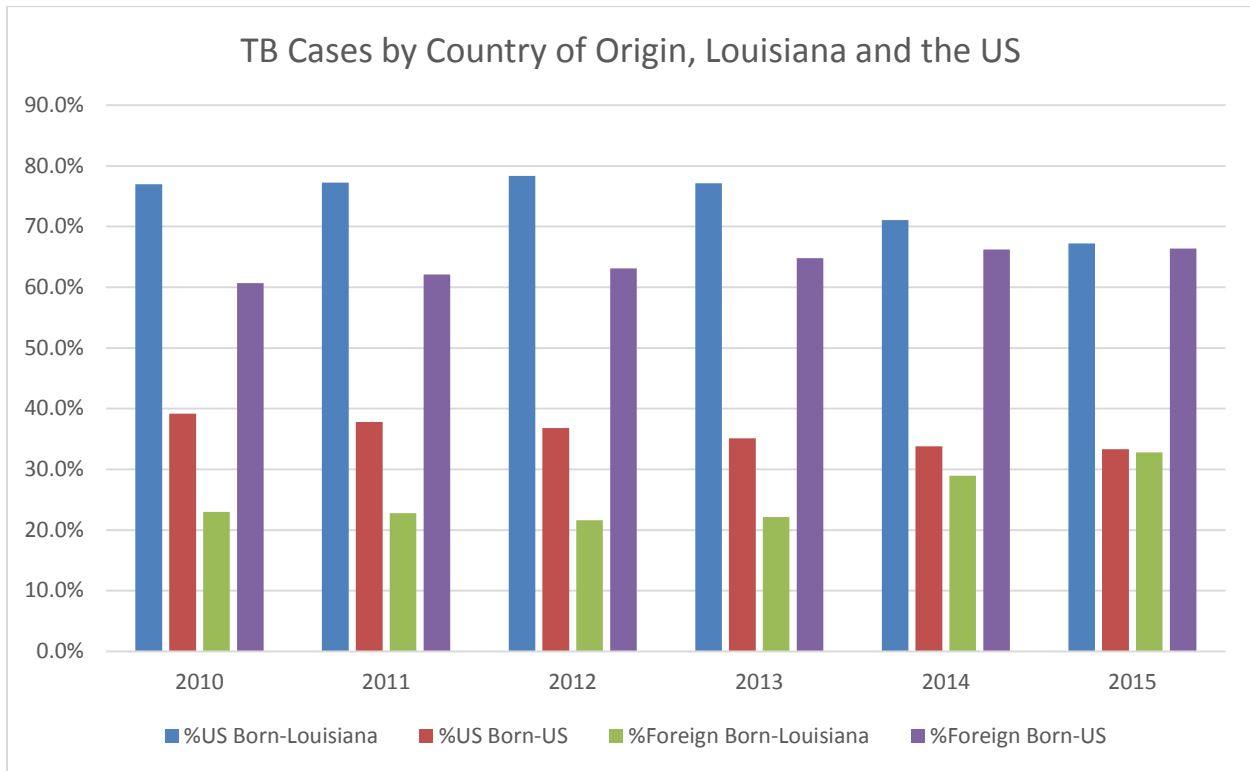


Figure 15. Percent of US and Foreign Born TB cases for Louisiana and the US, 2010-2015.<sup>7</sup>

<sup>7</sup> <https://www.cdc.gov/tb/statistics/reports/2015/table5.htm>

## TB by Risk Factors

The primary risk factors analyzed in this report were HIV co-infection, diabetes co-infection, homelessness, residing in a correctional facility (local, state, or federal jail or prison), injection and non-injection drug use, and excessive alcohol consumption (three or more drinks per day). Residing in a correctional facility occurred at the time of diagnosis. Homelessness, injection and non-injection drug use, and excessive alcohol consumption occurred within one year prior to TB diagnosis.

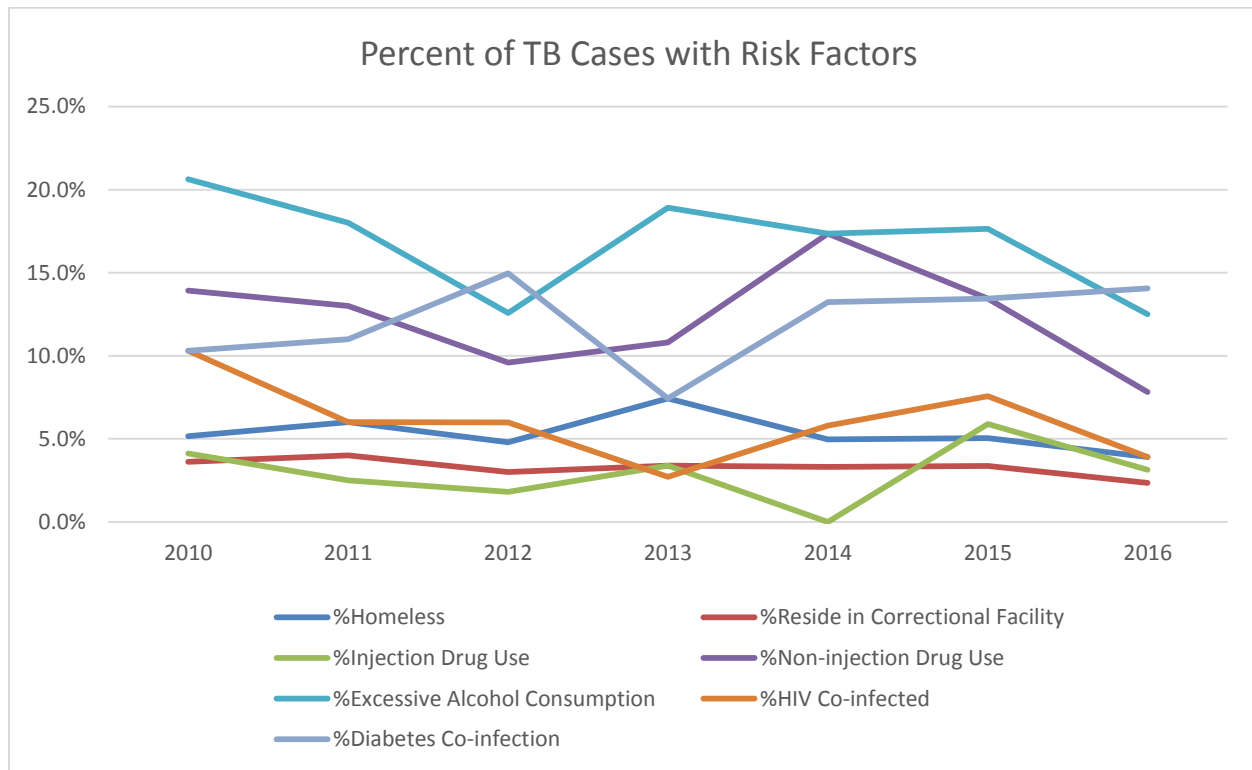


Figure 16. Percent of TB cases with risk factors in Louisiana from 2010-2016. Correctional facilities include local jail, state prison, and federal prison. Residing in a correctional facility occurred at time of diagnosis. Excessive alcohol consumption is defined as three or more drinks per day. Homelessness, injection drug use, non-injection drug use, and alcohol consumption occurred within one year prior to TB diagnosis.

## TB by Site of Disease

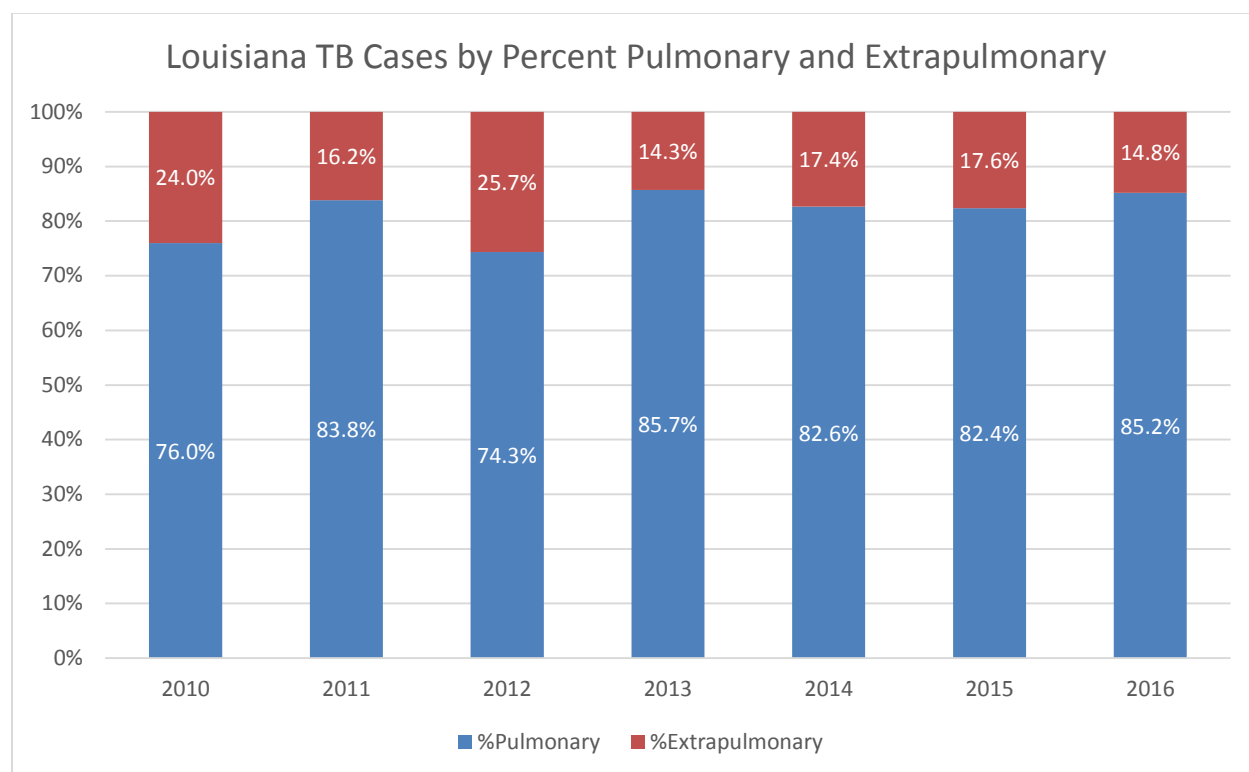


Figure 17. Percent of pulmonary and extrapulmonary TB cases for Louisiana from 2010-2016.

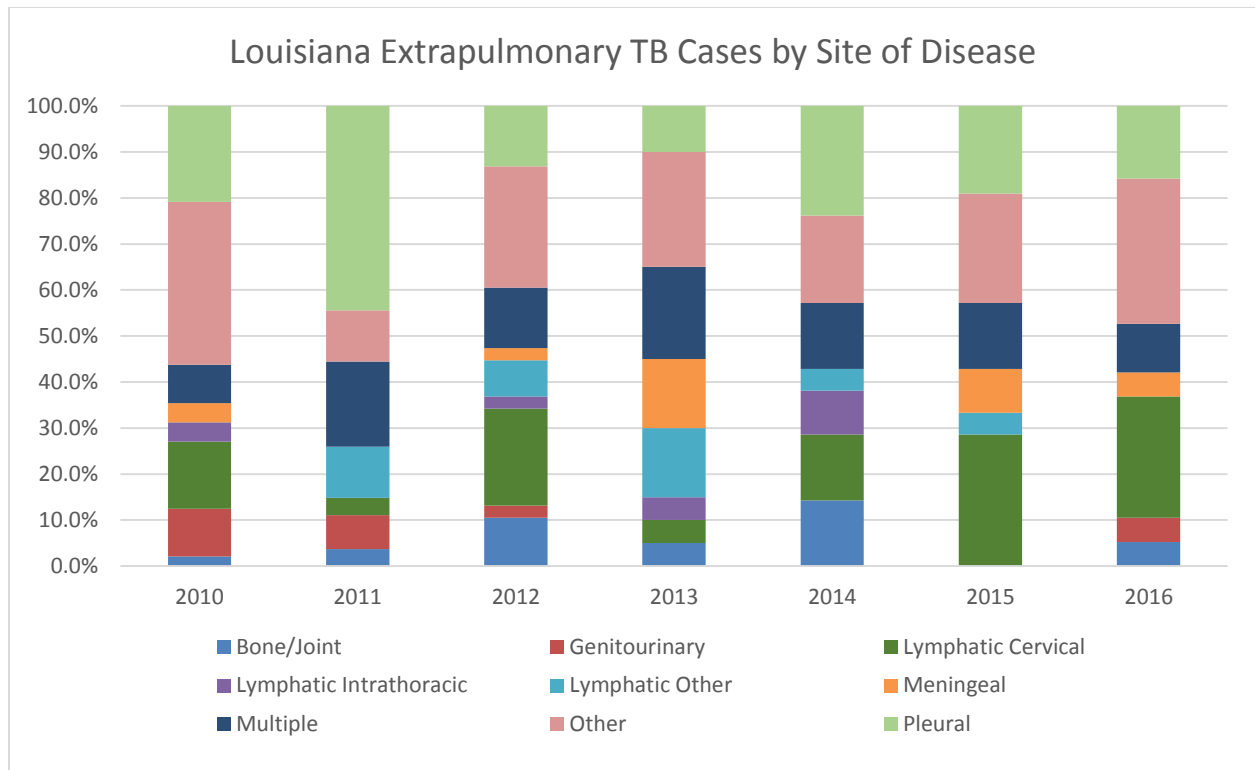


Figure 18. Extrapulmonary TB cases by site of disease as a percentage of all extrapulmonary cases, for Louisiana from 2010-2016.

## References

1. Centers for Disease Control and Prevention (CDC). Reported Tuberculosis in the United States, 2015. Atlanta, GA: US Department of Health and Human Services, CDC; 2016.  
[https://www.cdc.gov/tb/statistics/reports/2015/pdfs/2015\\_Surveillance\\_Report\\_FullReport.pdf](https://www.cdc.gov/tb/statistics/reports/2015/pdfs/2015_Surveillance_Report_FullReport.pdf)
2. Centers for Disease Control and Prevention (CDC). Reported Tuberculosis in the United States, 2013. Atlanta, GA: US Department of Health and Human Services, CDC; 2014.  
<https://www.cdc.gov/tb/statistics/reports/2013/pdf/report2013.pdf>
3. Demographics and Census Geography Louisiana State Census Data Center.  
[http://louisiana.gov/Explore/Demographics\\_and\\_Geography/](http://louisiana.gov/Explore/Demographics_and_Geography/), Louisiana population census data source.
4. Electronic Report of Verified Cases of Tuberculosis (eRVCT). CDC Reporting System, 2010-2014 Tuberculosis data source.
5. Infectious Disease Reporting Information System (IDRIS). Louisiana State Reporting System, 2015-2016 Tuberculosis data source.
6. STOP TB Partnership. *High Burden Countries*. <http://www.stoptb.org/countries/tbdata.asp>

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